$$= \frac{u_n^2 - 2u_n + 1}{1 + u_n}$$

$$= \frac{(u_n - 1)^2}{1 + u_n} > 0 \text{ car } u_n > 1$$

$(u_n - 1)^2 > 0$ et $1 + u_n > 0$

Donc $u_{n+1} > 1$ (1)

b) $u_{n+1} - 2 = \frac{u_n^2 - u_n + 2}{1 + u_n} - 2$

$$= \frac{u_n^2 - u_n + 2 - 2 - 2u_n}{1 + u_n}$$

$$= \frac{u_n^2 - 3u_n}{1 + u_n}$$

$$= \frac{u_n(u_n - 3)}{1 + u_n}$$

$u_n > 0$, $u_n - 3 < 0$, $1 + u_n > 0$

≤ 0

Donc $u_{n+1} \leq 2$ (2)

(1) et (2) $\Rightarrow$ $1 < u_{n+1} \leq 2$

Conclusion: $\forall n \in \mathbb{N} \quad 1 < u_n \leq 2$

b) $\forall n \in \mathbb{N}$, $u_{n+1} - u_n = \frac{u_n^2 - u_n + 2}{1 + u_n} - u_n$

$$= \frac{u_n^2 - u_n + 2 - u_n - u_n^2}{1 + u_n}$$